Expanded Site Investigation

Site Safety Plan

for

934214

Chicago Department of Streets and Sanitation

USEPA ID No. ILD 981 194 699

BVWST Project No. 71280.103

B&V Waste Science and Technology Corp.
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Chicago, Illinois 60606
(312) 346-3775

Prepared By: _____ Date: 1/14/94

Reviewed By: _____ Date: January 28, 1994
(BVWST PM)

Approved By: _____ Date: 11 MAR 94
(BVWST HSM) JA 12/1/93

NOTICE

B&V Waste Science and Technology Corp. (BVWST) produced this site safety plan for use on the specific project indicated herein. This site safety plan is not intended or represented to be suitable for use by others on the project, or for reuse on extensions of the project, or for use on any other project. Any use without written verification or adaption by BVWST will be at the user's sole risk and without liability or legal exposure to BVWST.

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1.0 General Information

1.1 Site Management

Client: U.S. Environmental Protection Agency (USEPA), Region V

USEPA Project Officer: Carl D. Norman (312) 886-5495

USEPA Work Assignment Manager: Alan Altur (312) 886-0390

B&V Waste Science Technology Corp. (BVWST) Project Manager:
Scott W. Anderson (312) 346-3775

BVWST Field Team:
Leader: Steve Mrkvicka
Safety Coordinator: Baltazar Berena

Site Location: Chicago Department of Streets and Sanitation
103rd Street and Doty Avenue
Chicago, Illinois

Background Information from: USEPA, Illinois Environmental Protection Agency (IEPA)

1.2 Emergency Contacts

1.2.1 BVWST Emergency Contacts

Project Manager: Scott W. Anderson
Phone: (312) 346-3775 (w)
Exemption 6 - Non Responsive

Director of Health and Safety (DHS): John T. "Jack" Schill
Phone: (913) 338-6595 (w)
Exemption 6 - Non Responsive

Medical Records: Chicago Regional Office

Barry Fischer, MD/U.S. Occupational Health, Inc.
Phone: (312) 641-1449 (w)

Worker's Compensation Administrator (WCA): Diane S. Mettenbrink
Phone: (913) 339-8561 (w)

Note: If a work-related injury or accident occurs, notify the WCA and the DHS as soon as possible after obtaining medical attention for the injured person. Notification must be made within twenty-four hours of the incident.

1.2.2 Local Emergency Contacts

Ambulance:	911
Police:	911
Fire:	911
Hospital:	Roseland Community Hospital 45 West 111th Street Chicago, Illinois 60628 312/995-3000
Poison Control Center:	1-800-252-2022
Regional USEPA:	Alan Altur, Work Assignment Manager
Phone:	(312) 886-0390
IEPA - DLPC:	Tom Crause
Phone:	(217) 782-6761

1.2.3 National Emergency Information

National Response Center:	1-800-424-8802
Center for Disease Control:	(404) 488-4100
Chemtrec *:	1-800-424-9300

* Provides information to persons responding to accidents involving shipments of hazardous materials.

2.0 Site Characteristics

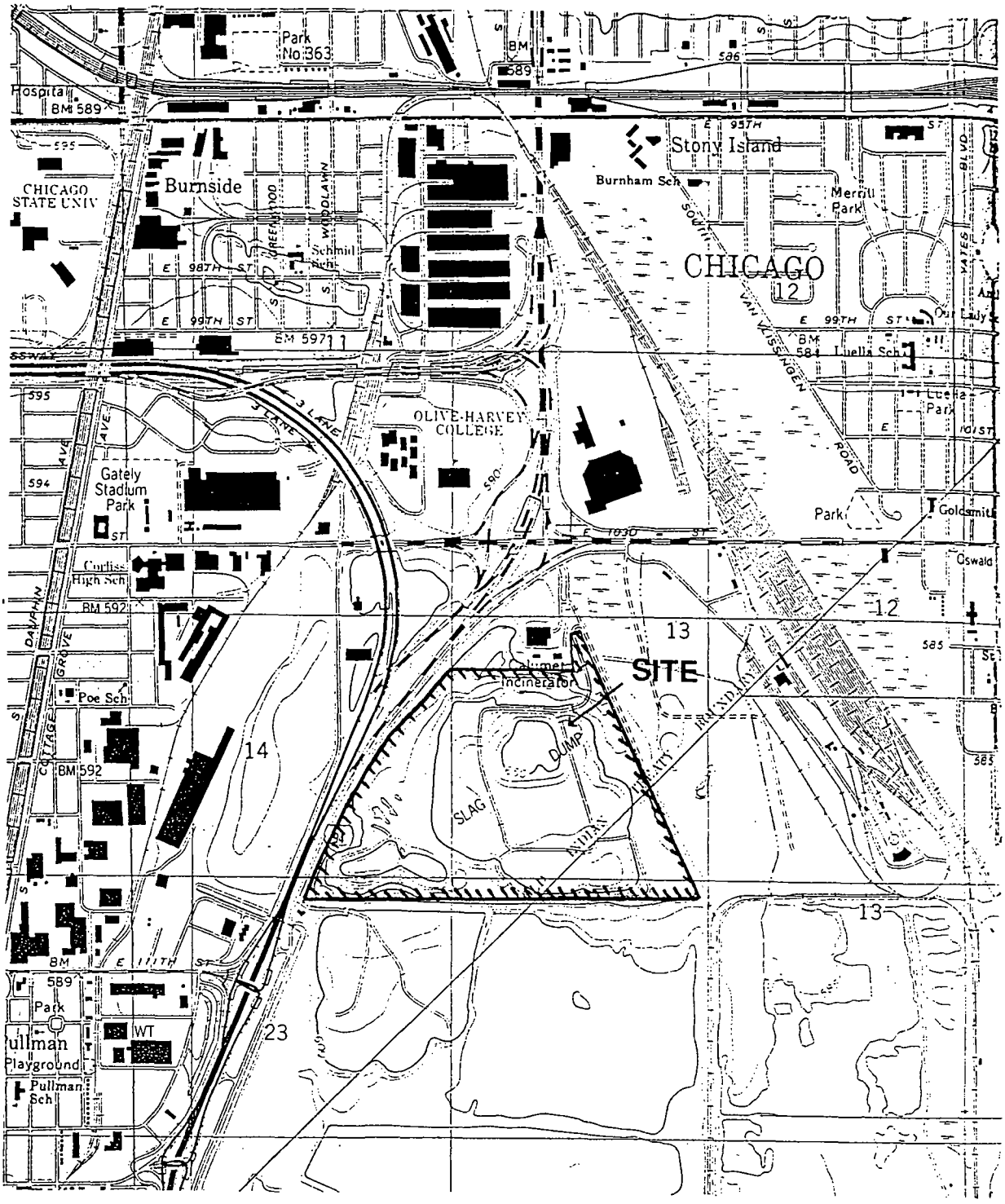
2.1 Facility Description and History

The Chicago Department of Streets and Sanitation (CDSS) site is located at the north end of Lake Calumet, between Stony Island Avenue to the east and Doty Avenue to the west, and 103rd Street to the north and 110th Street right-of-way to the south. The inactive Calumet Incinerator is adjacent to the northern site boundary. The site is specifically located in portions of sections 13 and 14, Township 37 North, Range 14 East. The facility covers approximately 225 acres. Figure 1 is a site location map. Figure 2 is a site sketch.

The site was initially operated as a municipal waste and construction debris landfill from 1945 to 1972 by CDSS. Ash from the nearby incinerator was also disposed of in the landfill, which was operated using the trench and area fill methods. Underground fires were reported at the site until 1976. The site was relinquished in 1978 to the Metropolitan Sanitation District (MSD) of Greater Chicago, who has operated a sludge application program onsite until 1992. MSD was permitted to dispose of the sludge according to federal regulations promulgated under 40 Code of Federal Regulations Part 503. MSD, presently called the Metropolitan Water Reclamation District (MWRD) of Greater Chicago, was directed in 1992 by the Illinois Environmental Protection Agency (IEPA) to close the site. Site closure was contingent upon constructing a public golf course on top of the facility. The property owner was also determined to be the Illinois International Port District (IIPD) and not the CDSS. An agreement was reached between IIPD and MWRD that designated site operations were the responsibility of the IIPD. The agreement also required MWRD to pay a sum to IIPD and to provide sewage sludge at the facility through 1994. The quantities of sludge disposed of at the site since 1978 is unknown, but MWRD reported monthly the amount of sludge and the composite inorganic content of the sludge.

2.2 Storage/Disposal Methods

The landfill was created by filling in the northern portion of Lake Calumet. Wastes, including general municipal refuse and incinerator ash, were disposed of at the site using trench and area fill methods. The landfill is not lined but is underlain by a thick lacustrine clay.



Source:
USGS 7.5' Topographic Map
Lake Calumet, IL-IND (1991)

Not to Scale

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Figure 1
Site Location Map

Chicago Department of Streets and Sanitation
Chicago, Illinois

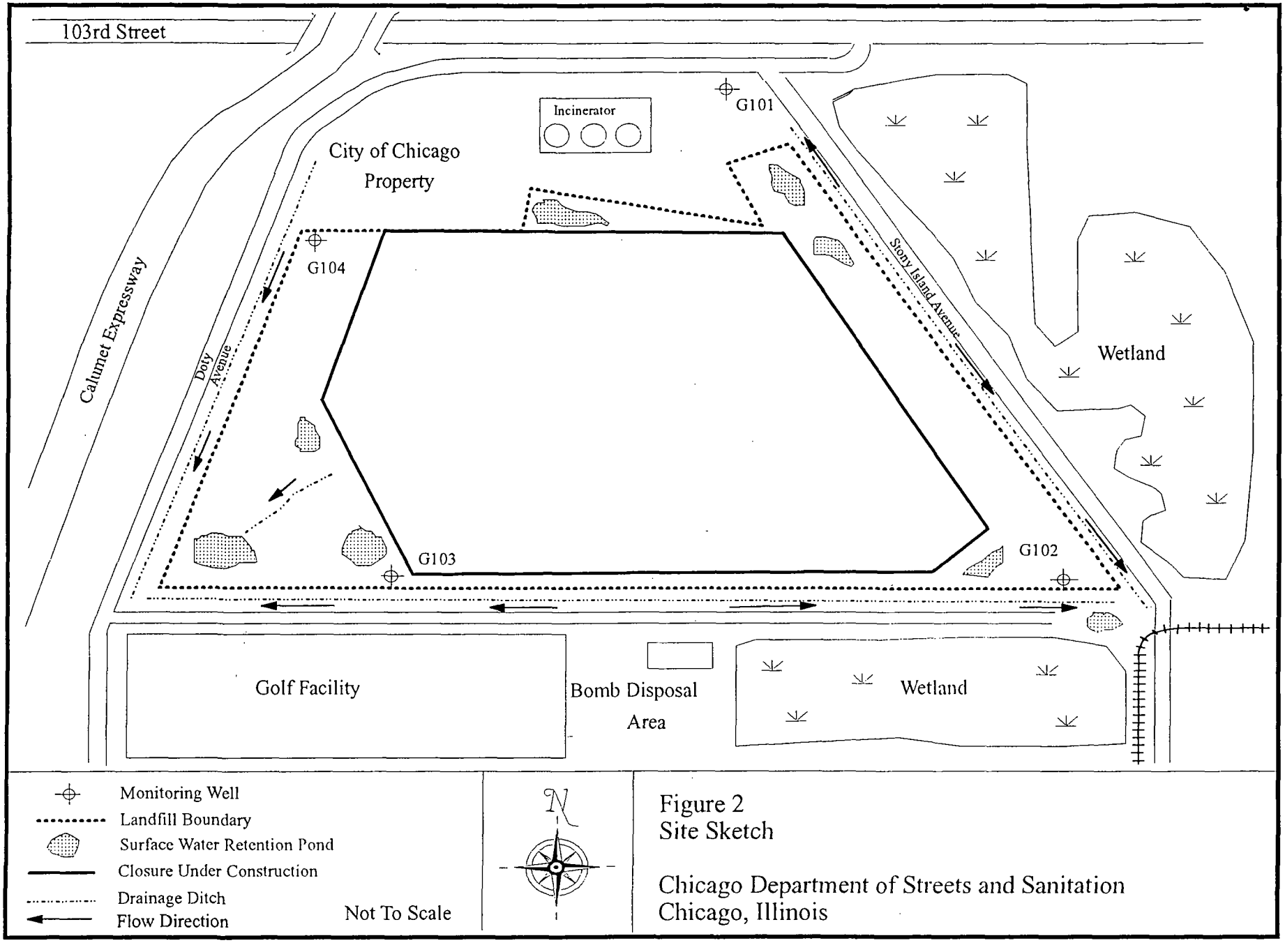


Figure 2
Site Sketch

Chicago Department of Streets and Sanitation
Chicago, Illinois

2.3 Physical Features and Unusual Conditions

The site is covered by dried sludge. When wet, the surface becomes muddy. For this reason, care must be taken to avoid slip, trip and fall hazards.

Underground fires were reported before 1976. For this reason, care will be taken when sampling the subsurface and air monitoring for combustible gases and oxygen levels will be performed.

The site is undergoing closure activities, which includes shaping the surface of the site for a golf course. Construction ceased in late 1993 for the winter season and will restart in Spring 1994. Several surface water retention ponds have been made onsite. Ductile tile and storm drains have been buried beneath the surface of the site, which consists of a rolling topography. Clay used for cover and sludge used for vegetative support are exposed along the site's surface. The site is surrounded by perimeter ditches and berms.

3.0 Scope of Work

3.1 Summary of Previous Site Activities and Sampling Results

MWRD was required by IEPA to conduct sampling of four onsite monitoring wells, which encircle the site at its periphery. These wells reach depths from 85 feet to 107 feet below ground level and are screened in the limestone bedrock. Two of these wells are dry but the other two have been sampled quarterly.

MWRD has also reported quarterly to IEPA the mean heavy metal content of the sludge delivered to the site. The ranges of heavy metal concentration in sludges delivered to the site from 1982 through 1992 in mg/kg are as follows: aluminum (6,540 to 26,400), calcium (38,800 to 81,761), cadmium (52 to 348), chromium (539 to 3,712), copper (386 to 2,210), iron (19,366 to 39,800), mercury (0.7 to 7.47), potassium (612 to 3,674), magnesium (12,100 to 31,100) manganese (385 to 4,620), sodium (297 to 1,350), nickel (81 to 404), lead (236 to 1,380) and zinc (1,514 to 5,515).

Past site inspections have determined that leachate seeps and uncontrolled, discolored runoff have been released from the site into a large wetland area east of the site across Stony Island Avenue. Site runoff presently cannot exit the site and enter the eastern wetland because the elevation of Stony Island Avenue was raised during resurfacing work conducted in 1991. A surface water sample, collected by IEPA on July 20, 1990, from the Stony Island ditch near the southeastern corner of the site near the railroad tracks, indicated the presence of arsenic (9 ppb), cadmium (7 ppb), chromium (38 ppb), copper (91 ppb), iron (4,000 ppb), manganese (500 ppb), nickel (120 ppb), selenium (3 ppb), silver (5 ppb), and zinc (180 ppb). A surface water sample, collected from the Stony Island ditch on June 2, 1989, by the Illinois State Water Survey, contained cadmium (4.4 mg/L), chromium (65 mg/L), lead (12.5 mg/L), and zinc (98 mg/L).

3.2 Planned Site Activities and Date

Twenty-two sediment samples will be collected at the site. Three sediment samples (ST01 through ST03) will be collected from the drainage ditch along the western site border adjacent to Doty Avenue. Two sediment samples (ST04 and ST05) will be collected from the onsite drainage ditch that drains to the southwestern corner of the site. Five sediment samples (ST06 through ST10) will be collected from the drainage ditch located along the southern site boundary. Two sediment

samples (ST11 and ST12) will be collected from the offsite wetland area that is contiguous to the site's southern boundary. Two sediment samples (ST13 and ST14) will be collected from the drainage ditch that connects site runoff to Lake Calumet. Four sediment samples (ST15 through ST18) will be collected from the drainage ditch located along the eastern site perimeter. Three sediment samples (ST19 through ST21) will be collected from the offsite wetland area located east of the site across Stony Island Avenue. Sediment samples ST01 and ST15 will be collected from the western and eastern ditches upgradient of the site to establish background conditions. A third background sediment sample (ST22) will be collected from the wetland area east of the site to determine conditions from an assumably undisturbed location. Figure 3 is the proposed sampling location map.

Field work is tentatively scheduled to begin February 7, 1994. The number of BVWST personnel working onsite under this site safety plan (SSP) will be three people. The number of working days onsite for these personnel is estimated at three days.

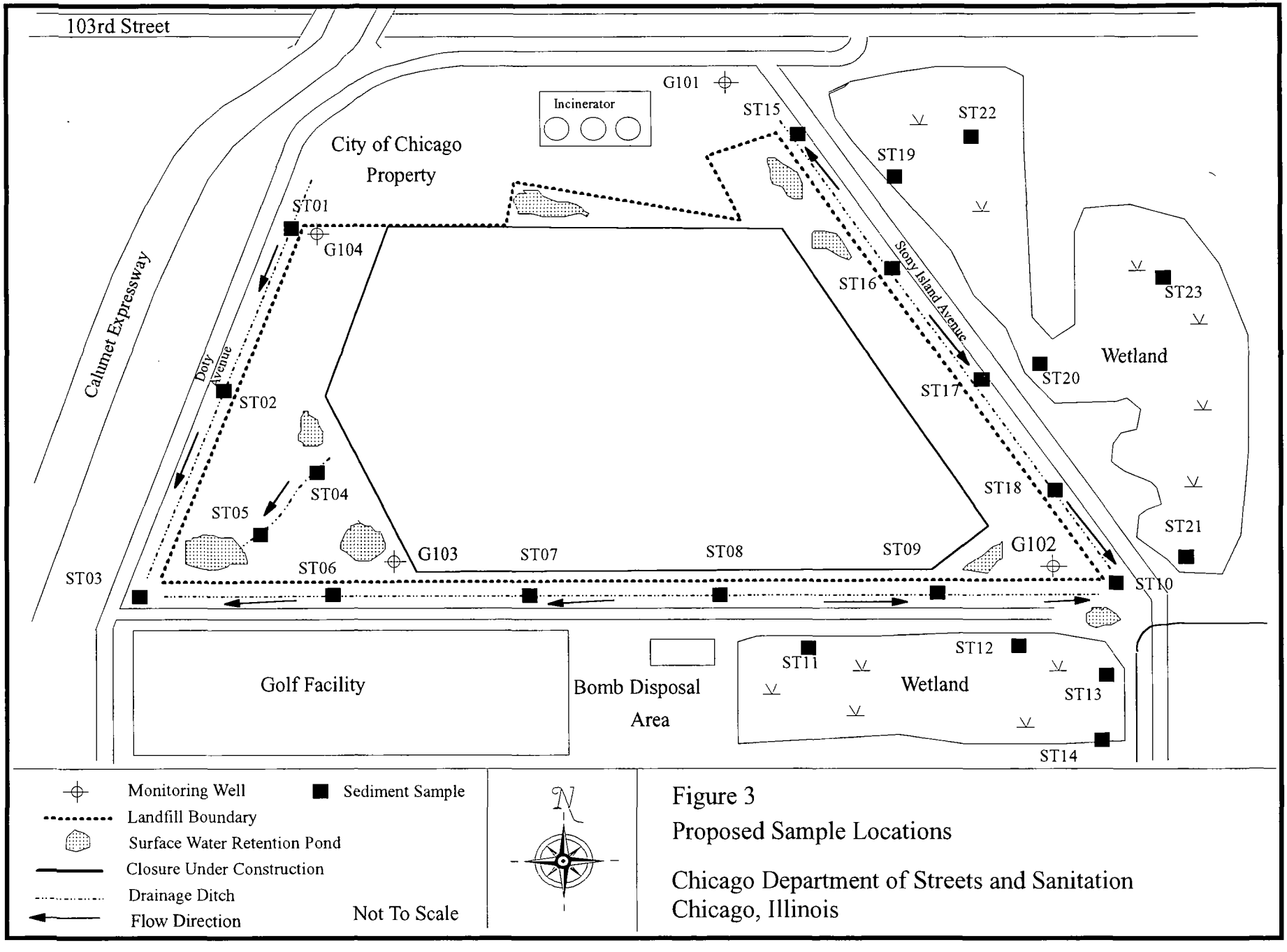


Figure 3
Proposed Sample Locations

Chicago Department of Streets and Sanitation
Chicago, Illinois

4.0 Hazard Evaluation

4.1 Chemicals of Concern

The chemicals of concern, determined from past site sampling data, are heavy metals, including aluminum, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, and zinc.

Table 1 lists the chemicals of concern onsite, and gives various data necessary to fully inform site workers of potential hazards and their particular effects. The source of information for their identification is (1) regulatory agency information supplied to BVWST, (2) chemical analyses made for or by the owner/operator or (3) other sources to be named. Notation is made of the routes by which a person may be exposed. We also report one or more of the following (1) the National Institute for Occupational Safety and Health (NIOSH) recommended exposure limits (RELs), which are time-weighted average (TWA) concentrations for up to a 10-hour workday during a 40-hour workweek; (2) the NIOSH short-term exposure limit (STEL), which is a 15-minute TWA exposure that should not be exceeded at any time during a workday; (3) the NIOSH ceiling REL, an exposure which may not be exceeded at any time; (4) the Occupational Health and Safety Administration (OSHA) permissible exposure limits (PELs), which are TWA concentrations that must not be exceeded during any 8-hour work shift of a 40 hour workweek; and (5) the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV), which is an 8-hour TWA concentration.

The information on chemical hazards and effects on humans is gathered from the following sources:

- Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd Edition, 1985.
- Dangerous Properties of Industrial Materials by N.I. Sax, Fifth Edition, 1979.
- Guide to Occupational Exposure Values, American Conference of Governmental Industrial Hygienists, 1993.
- Pocket Guide to Chemical Hazards, National Institute of Occupational Safety and Health, U.S. Department of Health and Human Services, June 1990.
- Threshold Limit Values for Chemical Substances and Physical Agents, American Conference of Governmental Industrial Hygienists, 1993-1994.

Table 1 Chemicals of Concern

	Contaminant	Exposure Route	TWA Exposure Limits	IDLH	Hazard/Symptoms
Inorganics	Arsenic CAS # 7440-38-2	Inhalation, Absorption, Contact, Ingestion	TLV: (0.2) mg/m^3 PEL: (0.01) mg/m^3 Human Carcinogen	100 mg/m^3	Ulceration of nasal septum; dermatitis, gastro-intestinal disturbances; peripheral neuropathy; respiratory irritation, hyperpigmentation of skin
	Cadmium CAS # 7440-43-9	Inhalation, Ingestion	TLV: (0.05) mg/m^3 PEL: 0.1 mg/m^3 Probable Human Carcinogen	50 mg/m^3	Pulmonary edema, dyspnea, cough, chest tightness, substernal pain; headache; chills, muscle aches; nausea, vomiting, diarrhea, mild anemia
	Chromium CAS # 7440-47-3	Inhalation, Ingestion	TLV: 0.5 mg/m^3 PEL: 1 mg/m^3	No IDLH	Histologic fibrosis of lungs, dermatitis, potential carcinogen
	Copper CAS # 7440-50-8	Inhalation, Ingestion, Contact	TLV: 1 mg/m^3 PEL: 1 mg/m^3 Probable Human Carcinogen	No IDLH	Pharynx and mucous membrane irritant, nasal perforation, eye irritant, metallic taste
	Iron CAS # 15438-31-0	Inhalation	TLV: 5 mg/m^3 PEL: 10 mg/m^3	No IDLH	Cutaneous irritants, irritants to respiratory tract, benign pneumoconiosis, carcinogen
	Lead CAS # 7439-92-1	Inhalation, Ingestion, Skin/Eye Contact	TLV: 0.15 mg/m^3 PEL: 0.05 mg/m^3	700 mg/m^3	Weakness, lassitude, insomnia, facial pallor, anorexia, low-weight, constipation, abdominal pain, anemia, wrist and ankle paralysis
	Manganese CAS # 7439-96-5	Inhalation, Ingestion	TLV: 5 mg/m^3 (0.2) mg/m^3 Intended Change	No IDLH	Parkinson's disease, asthenia, insomnia, mental confusion; metalfume fever; dry throat, cough, tight chest, dyspnea, races, flu-like fever; low-back pain; vomiting; malaise; fatigue
	Nickel CAS # 7440-02-0	Inhalation, Ingestion, Skin/Eye Contact	TLV: 1 mg/m^3 PEL: 1 mg/m^3 Carcinogen	No IDLH	Headache, nausea, vomiting epigastric pain, substernal pain, cough, cyanosis, weakness, pneumonitis, delirium, abnormally deep and rapid breathing
	Selenium CAS # 7782-49-2	Inhalation, Absorption, Ingestion, Contact	TLV: 0.2 mg/m^3 PEL: 0.02 mg/m^3	Unknown	Irritated eyes, nose throat; visual disturbance; headache; chills, fever; dyspnea, bronchitis; metallic taste; garlic breath; GI disturbances; dermatitis; skin/eye burns
	Silver CAS # 7440-22-4	Inhalation, Ingestion, Contact	TLV: 0.1 mg/m^3 PEL: 0.01 mg/m^3	No IDLH	Blue-gray eyes, nasal septum, throat, skin; irritated skin; ulceration
	Zinc CAS # 1314-13-2 (Zn0)	Inhalation	TLV: 5 mg/m^3 PEL: 5 mg/m^3	No IDLH	Sweet metallic taste, dry throat, cough, chills, fever, tight chest, reduced pulmonary function, headache, blurred vision, muscular cramps, low back pain, nausea, vomiting, difficulty in breathing

4.2 Physical Hazards

Potential physical hazards include falling down the steeply sloped side of the landfill. Personnel should be aware of the slopes when traversing the landfill. Rainy and wet conditions present slip, trip and fall potential. Exposed debris and leachate present physical hazards.

Physical hazards also include potential injuries from lifting objects greater than one-third of the total body weight, using sharp or edge implements.

These hazards will be minimized by raising objects with the legs rather than the back, taking care to avoid cut or stab wounds when using sharp or edged implements (scissors, knives, tape dispensers), and maintaining safe footing.

4.3 Biological or Radiation Hazards

The inadvertent disposal or use of radioactive substances at a site before general recognition of their pollution potential remains a possibility, especially for sites dating back to before 1950. Because reliable information can be obtained only by a survey with a radiation meter, the team will make such a survey of the site immediately after their arrival.

4.4. Unusual Hazards

Care should be taken, especially if rain has recently fallen on the site, when traversing the slopes of the landfill to prevent slip, trip and fall hazards. Exposed debris and leachate present potential hazards.

The occurrence of underground fires before 1976 will require care during site operations as well as proper air monitoring equipment, as described in Section 5.5.

An area adjacent to the southern site border is periodically used by the Chicago Police Department to detonate explosive devices such as fireworks and occasionally bombs. Police have been allowed to use the area since the early 1980s when the City of Chicago controlled the property. The police detonate the explosives in a highly controlled environment; all explosives are detonated within two large concrete and steel reinforced pipes. No live explosives are buried or left on the site. The detonation area is not secured; therefore, all sampling crew members will stay a minimum of 50 yards away from the detonation area. Extra caution will be exercised if the police are using the area to detonate a device. No sampling activities will be performed near the disposal area.

5.0 Personnel Training and Protection

5.1 Training Requirements

All personnel assigned to actively engage in hazardous waste operations at this site must present to the site safety coordinator (SSC) certification of successful completion, within the 12 months before the beginning date of site work, of a hazardous waste site investigation training or refresher course. The training must comply with applicable OSHA regulations found in 29 CFR 1910.120 et. seq. Presentation of the certification must occur before the worker departs for the site. A minimum of two workers assigned to the hazardous waste investigation will be currently certified in first aid and cardiopulmonary resuscitation. Company policy requires that the SSC complete an 8-hour supervisors training course and have at least six days of work experience at or above the planned level of protection before site field work begins.

5.2 Medical Monitoring Requirements

All personnel assigned to the hazardous waste investigation of this site must present to the SSC certification of completion, within the 12 months before the date site field work begins, of a comprehensive medical monitoring examination, which must comply with OSHA regulations in 29 CFR 1910.120 et seq. The certification must be signed by a medical doctor and must indicate (1) any work limitations placed on the individual and (2) the individual is capable of working while wearing respiratory protection equipment. Presentation of the certification must occur before the worker departs for the site.

5.3 Fit Test Requirements

All workers entering the exclusion or contamination reduction zones at a site where use of a full-face negative pressure respirator is necessary must have successfully passed a qualitative respirator fit test in accordance with OSHA 29 CFR 1910.134 within the preceding 12 months.

5.4 Personal Protective Equipment

All sampling activity at the site will be initiated with the personnel attired in Level D. Attachment A describes the degree of protection and items required in

Level D. If a monitoring result or other observation indicates the potential inadequacy of Level D, all team members will immediately withdraw to the designated rally point and reassess the site conditions.

5.5 Monitoring Requirements

Immediately upon initial entry by the sampling team, monitoring of the site will be carried out with the following equipment:

- A device capable of detecting organic vapors, such as a PID or a FID.
- A device capable of detecting radioactivity.
- A device capable of detecting hydrogen cyanide gas.

Each of these devices will be calibrated immediately before initial use and recalibrated at the beginning of each successive day of use.

The SSC will direct and supervise perimeter and general site monitoring, upwind and downwind, to establish background levels. The SSC will direct the subsequent frequency of monitoring based on the value of the initial readings and the limits described in Attachment B (working environment action levels for site activities).

Consideration of the available historical and site observation information indicates the use of additional testing devices for this site, which are:

- O_2/LEL meter.
- Dust meter.

The decision by the SSC to upgrade/downgrade the level of personal protective equipment will be based on concentrations detected in the breathing zone of workers and the indicated limits in Attachment C (Breathing Zone Action Levels).

The potential presence of heavy metals in airborne dust warrants consideration of dust action levels. This calculation, based upon the maximum concentrations described in Section 3.1 of this SSP, results in a maximum exposure level of 1.18 mg/m^3. Therefore, the use of respirators with appropriate filters will take place at the 1.0 mg/m^3 level for airborne dust, as monitored by a dust meter.

Operation, maintenance, and calibration in accordance with the manufacturers requirements as described in the appropriate equipment manual of each instrument used onsite is the responsibility of the SSC.

If the release of contaminants could negatively impact the health and safety of inhabitants of the surrounding areas, the SSC will contact the local emergency response organization.

5.6 Site Organization and Control

The available information supports the use of Level D personal protective equipment (PPE) during the activities onsite. Three general work zones will be established: an exclusion zone, a contamination reduction zone (CRZ), and a support zone. An exclusion zone will be designated around each sediment sample collection point. Decontamination of personnel and equipment will occur in the contamination reduction zone. The support zone will consist of the dirt road leading into the property, where the vehicles will be park when onsite. Personnel and equipment leaving an exclusion zone must be decontaminated according to the procedures described in Section 5.9 before entering the support zone. Chemical protective PPE is not required in the support zone. Entry into an exclusion zone or contamination reduction zone will be limited to workers with certified training and medical monitoring in accordance with sections 5.1, 5.2, and 5.3.

Use of a buddy system is mandatory for entry into an exclusion zone. At least two people will work as a team, each looking out for the other. Each buddy will observe the partner for stress, check the partner's protective clothing, notify the support zone in the event of an emergency, and provide assistance, if needed.

Successful communication between field workers is essential. Attachment E shows the two communication systems set up for this purpose. The SSC will determine which system will be used onsite. The SSC will instruct all field personnel to stand upwind of the work area whenever possible.

5.7 Initial Procedures

- Coordinate all site activities with Illinois International Park District and USEPA personnel.
- Locate nearest available accessible telephone and a backup.
- Drive the selected route from site to nearest hospital.
- Confirm and post the emergency telephone numbers.
- Post the OSHA job safety and health protection poster.
- Hold safety briefing for all workers.
- Designate the vehicle to be used for emergencies.
- Determine prevailing wind direction.
- Perform initial site survey with the planned monitoring equipment.
- Establish the work zones.
- Review locations of fire extinguishers.

5.8 Required Work Limitations

- Work is allowed only during daylight hours.
- Work shall cease during any storm event exhibiting lighting and personnel shall enter vehicles.
- Air monitoring will occur as specified in plan.
- No worker may enter site with facial hair that would interfere with proper fit of respirator.
- No worker may wear contact lenses while onsite.
- While working in EZ or CRZ, the following rules apply:
  - -- No eating, drinking, or use of tobacco or cosmetics in this zone.
  - -- No horse play.
  - -- No matches or lighters in this zone.
  - -- Wear level of protection specified in SSP.
- While working in the EZ, the following rules apply:
  - -- Check in with SSC upon entering; check out with SSC upon exiting.
  - -- Implement the communications system.
  - -- All workers remain within sight of one another.

5.9 Decontamination Procedures

Personnel: Decontamination in Level D conditions will be performed in accordance with procedures outlined in Attachment E. A decontamination line will be set up in the CRZ for this purpose, thereby minimizing the transfer of potentially contaminated soil into the support zone and government or rented vehicles. If PID or FID readings in the worker breathing zone exceed background (up to 5 ppm), thereby dictating that PPE be elevated from Level D to Level C, then a decontamination line for the workers in Level C will also be set up in the CRZ. Refer to Attachment E for the step-by-step procedure for personnel decontamination planned for the site. Decontamination will be conducted in Level D protection.

Equipment: All sampling equipment will be decontaminated using the following procedure:

(1) Wash in a solution of biodegradable detergent, scrubbing with brush to remove adhering material, if necessary.
(2) Triple rinse with tap water.
(3) Triple rinse in deionized water.
(4) Wrap all decontaminated equipment in foil.

Monitoring Equipment: All monitoring equipment will be decontaminated using the following procedure:

(1) Prevent contact with contaminated materials as much as possible.

(2) Wipe with a cloth dampened in a biodegradable detergent solution.

5.10 Disposal Procedures

The disposal of decontamination wastes will follow procedures mandated by USEPA Region V.

Decontamination Wastes: Investigation-derived waste (IDW) must be disposed of onsite unless doing so will increase hazards. If IDW must be removed from a site, it will be placed in a landfill in accordance with Resource Conservation and Recovery Act guidelines under IEPA supervision. Spent decontamination soap/rinse solutions will be disposed of onsite at the sample collection points.

Contaminated PPE: Clothing not completely decontaminated onsite will be secured in plastic bags and removed from the site.

5.11 Safety Equipment

- Fire extinguishers, ten-pound ABC (one per vehicle).
- Eye-wash kits (15-minute capacity).
- First aid kits (one per vehicle).
- Blanket, one for each two workers.

5.12 Confined Space Entry Procedures

No confined space entries will occur during the activities at this site.

5.13 Hazardous Waste Site Personnel Activity Report

A hazardous waste site personnel activity report (Attachment H) will be filled out by the field team leader as a part of follow-up activities. The completed report will be sent to the BVWST Director of Health and Safety.

5.14 Occupational Safety and Health Association (OSHA) Posting

As required by OSHA, the OSHA Health Act of 1970 Posting is to be posted at all work sites. The poster is to be placed in a visible location so that all field personnel are aware of its presence.

6.0 Emergency Information

6.1 Emergency Route

The nearest hospital is Roseland Community Hospital, which is located at 45 East 111th Street in Chicago. The telephone number is (312) 995-3000. The route to the hospital from the site includes the following directions:

- Travel north on the site service road to Stony Island Avenue.
- Take Stony Island Avenue north to 103rd Street.
- Turn left (west) on 103rd Street. Travel approximately 2.2 miles to State Street.
- Turn right (south) on State Street. Travel approximately 1 mile to East 111th Street.
- Turn right (west) on East 111th Street. The hospital is on the southwestern corner of State Street and East 111th Street.

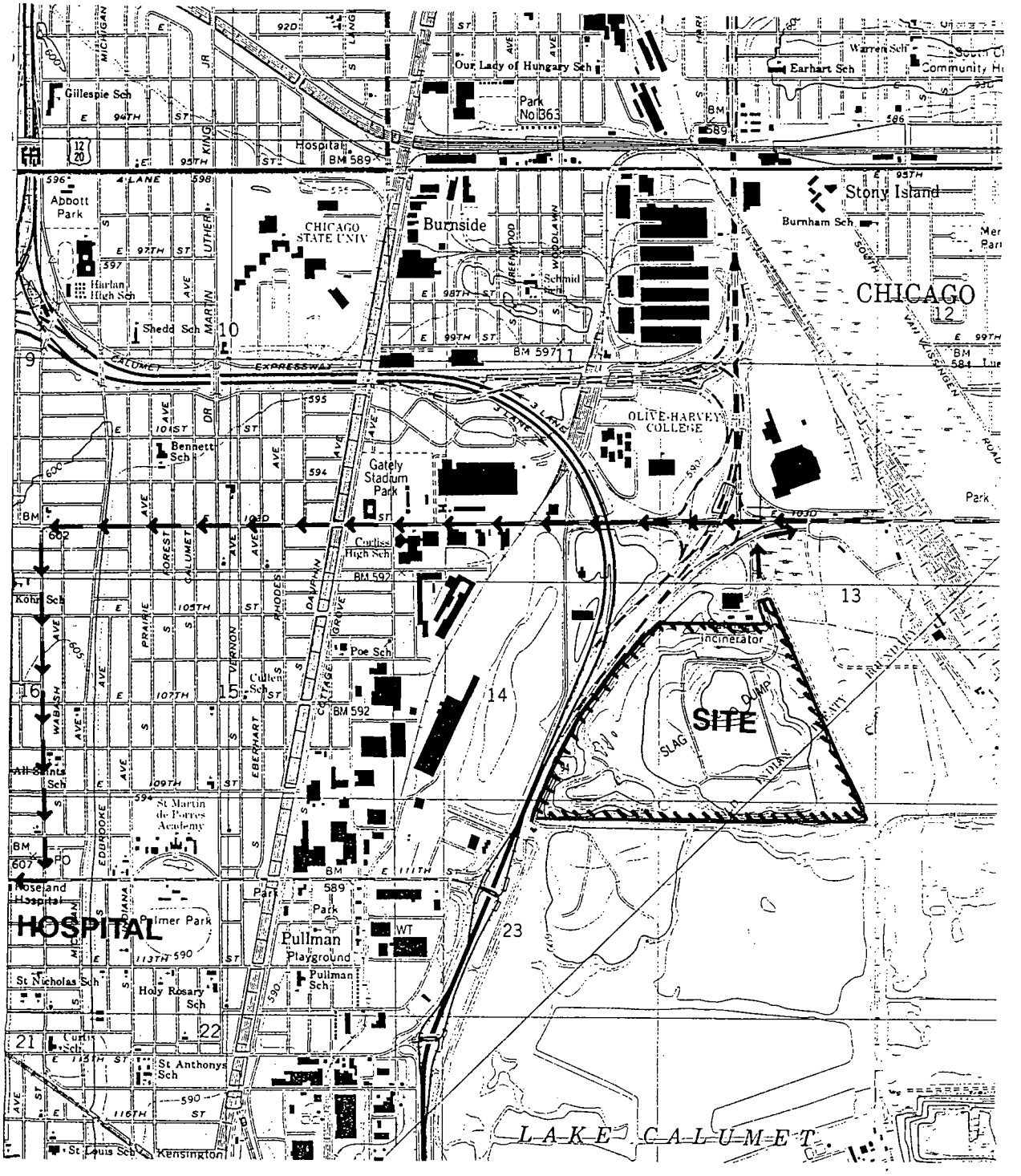
Figure 4 depicts the emergency route to the hospital.

6.2 Contingency Plan

6.2.1 Pre-Emergency Planning

The SSC will also act as emergency coordinator and be responsible for initiating appropriate emergency procedures when required during site work. In the event of a work related injury, notification of the fact will be given to the SSC, the field team leader (FTL), the project manager (PM), and the DHS. The emergency coordinator is responsible for the following actions:

- Establish work zones and escape route.
- Designating onsite personnel to respond to incipient fires, medical emergencies, and small spills.
- Notifying the emergency response team for the locality.
- Assessing the emergency.
- Administering or directing first aid.
- Maintaining safety equipment.
- Posting emergency telephone numbers and map showing route to hospital.



Source:
USGS 7.5' Topographic Map
Lake Calumet, IL-IND (1991)

Not to Scale

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Figure 4
Hospital Route Map

Chicago Department of Streets and Sanitation
Chicago, Illinois

6.2.2 Emergency Recognition and Prevention

All BVWST workers will bring to the attention of the SSC or FTL any unsafe condition, practice, or circumstance associated with or resulting from the field investigation. In cases of immediate hazard to the BVWST workers or the public, any employee on the scene will take all reasonable and safe steps to eliminate or neutralize the hazard. Subsequent consultation with the SSC, FTL, PM, and DHS will occur at the first opportunity. For such circumstances, the SSC will take those actions necessary to ensure the investigation can be safely completed. Such actions could be changes in procedure, consultation with appropriate experts, or obtaining a specialist. In instances where the hazard is not an immediate danger to the field team, the SSC may consult the Director of Health and Safety source regarding appropriate corrective measures.

If any team member is overcome, incapacitated, or traumatically injured onsite, the other team members will immediately call for assistance, don appropriate protective equipment, and make reasonable efforts to aid the affected person. At least one person will remain outside the problem area until help arrives. If removal of the affected person from the site is necessary, the buddy shall accompany him/her unless specifically forbidden by medical or police authority. If prudent, personnel decontamination will occur to the extent possible, but not at the expense of time needed to treat the affected person.

If it is known or suspected that the problem is due to chemical exposure, then all team members similarly exposed will proceed immediately, together, to the nearest appropriate medical facility. If personal contamination has occurred, all persons involved will make every reasonable effort to decontaminate themselves.

6.2.3 Site Security and Control

The site is not fenced. Access is somewhat difficult because of two berms which encircle the site. Site security and control will be managed on a visual basis.

6.2.4 Evacuation Routes and Procedures

Evacuation from the site will be along the site service road north to the entry point (Figure 5). Team members will assemble at the site entry point and await instructions from the SSC. The SSC will designate an evacuation route from each sampling area which will move workers away from the developed hazard in a safe, efficient manner and permit effective access for fire/emergency vehicles during an

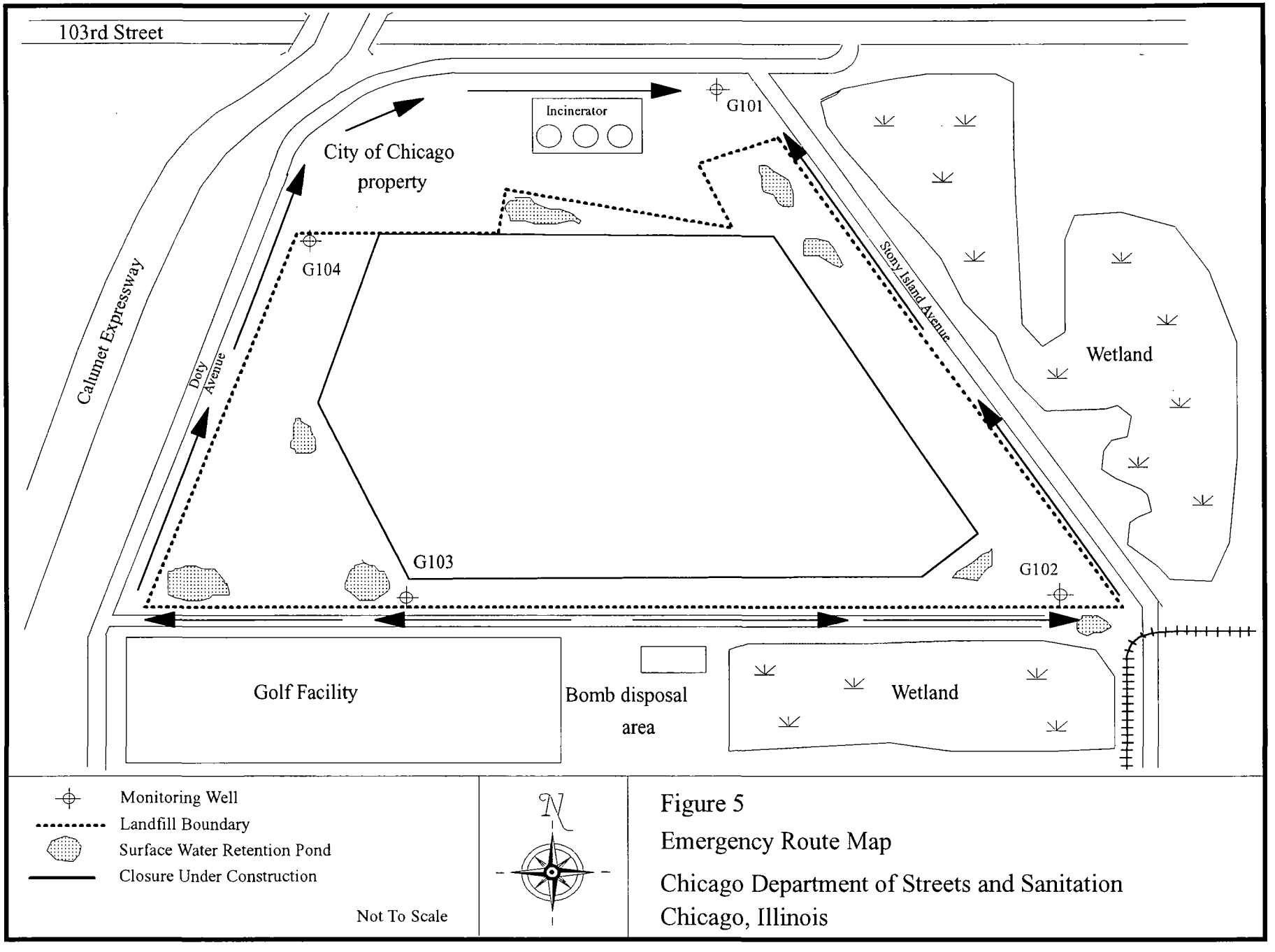

Figure 5

Emergency Route Map

Chicago Department of Streets and Sanitation

Chicago, Illinois

emergency. The rally point will be upwind and at a safe distance from all areas of activity. The SSC is responsible for determining all personnel are present at the rally point. In the event of missing personnel, emergency response organizations will be notified immediately of the need for search and rescue. Personnel will remain at that area until an authorized individual provides further instructions.

6.2.5 Emergency Decontamination

In addition to routine decontamination procedures,emergency decontamination procedures will be established. In an emergency, the primary concern is to prevent the loss of life or severe injury to site personnel. If immediate medical treatment is required to save a life, limited decontamination will be performed or the person will be wrapped in a blanket. If a worker has been contaminated with an extremely toxic or corrosive material that could cause severe injury or loss of life, decontamination will be performed immediately. If an emergency due to heat-related illness develops, protective clothing will be removed from the victim as soon as possible to reduce the heat stress. During an emergency, provisions will also be made for protecting medical personnel and disposing of contaminated clothing and equipment.

6.2.6 Emergency Medical Treatment and First Aid

At least two BVWST personnel conducting hazardous waste operations at the site will have successfully completed Red Cross sponsored courses in adult first aid and cardiopulmonary resuscitation. Before the start of work, the SSC will confirm the availability of medical facilities, ambulance service, and emergency personnel.

Onsite first aid equipment will consist of a 15-minute eye wash, location to be determined after establishing the command post, exclusion, and contamination reduction zones; a first-aid kit to be carried in each of the vehicles associated with the sampling event; a fire extinguisher located in each vehicle; and a wool blanket for each two workers. Further, an approved SSP will be kept in each vehicle, which includes a map to the hospital, and emergency telephone numbers for the local ambulance, hospital, poison control center, fire, and police.

If the SSC determines that a situation occurs which could threaten human health or the environment outside the facility, he will immediately notify the USEPA and appropriate local authorities.

Any onsite response teams will maintain direct contact with the emergency coordinator at all times. Hand signals will be utilized where radios are impractical

or unsafe. Attachment F lists the hand signals most often used. The location of the nearest telephone will be determined and sampling team personnel notified.

6.2.7 Emergency Response Procedures

The field team will be responsible for responding to minor emergencies such as incipient fires, and minor first-aid problems. In the event of fire, spill, or other emergencies that cannot be controlled by onsite response personnel, all site personnel will evacuate to a predesignated zone. Site personnel will wait in the designated zone for further instructions from the SSC and/or emergency response personnel.

6.2.8 Critique of Response and Follow-up

A follow-up meeting will be held after any emergency situation to assess the actions taken. The meeting will be attended by the SSC and other individuals as appropriate. A record of the meeting will be kept by the SSC and sent to the BVWST DHS. Recommendations from the meeting will be incorporated into the future responses to emergency situations.

7.0 Certification

(Note: This page containing the original signatures of the team members will be retained by the SSC and incorporated into the project file copy of the SSP).

By my signature, I certify that:

1. I have read,
2. I understand, and
3. I will abide by

the site safety plan for the Chicago Department of Streets and Sanitation Landfill site.

Printed Name	Signature	Date	Affiliation

Attachment Contents

Attachment A
Personal Protection

Levels of Protection for Workers

The specific levels of protection and the necessary components for each have been divided into four categories according to the degrees of protection afforded:

Level A: Worn when the highest level of respiratory, skin, and eye protection is needed.

Note: No person can work at Level A without special training and written approval by the Director of Health and Safety.

Level B: Worn when the highest level of respiratory protection is needed, but a lesser level of skin protection is needed. Level B is the primary level of choice when entering a totally unknown environment.

Level C: Worn when the criteria for using air-purifying respirators are met and a lesser level of skin protection is needed.

Level D: Worn only as a work uniform and not in any area with respiratory or skin hazards. Level D provides minimal protection against chemical hazards.

Ensembles for the Respective Levels of Protection

Level B PPE:

- Supplied-air respirator (Occupational Safety and Health Administration/National Institute of Occupational Safety and Health [OSHA/NIOSH] approved). Respirators may be positive pressure-demand, self-contained breathing apparatus, or positive pressure-demand, airline respirator (with escape bottle for immediately dangerous to life or health [IDLH] or potential for IDLH atmosphere).
- Saranex hooded chemical-resistant one-piece suit.
- Long cotton underwear (as applicable).
- Outer gloves, chemical-resistant (Nitrile - 11 mil).
- Inner gloves, chemical-resistant (Nitrile - 4 mil).
- Boots, chemical-resistant, steel toe and steel shank.

- Outer boot covers, chemical-resistant, disposable.
- Hard hat.
- Two-way radio communications (intrinsically safe) or equivalent.

Level C Personal Protective Equipment:

- Air purifying respirator (OSHA/NIOSH approved) with an organic vapor/acid gas/high efficiency particulate filter cartridge.
- Saranex chemical-resistant one piece suit.
- Outer gloves, chemical-resistant (Nitrile - 11 mil).
- Inner gloves, chemical-resistant (Nitrile - 4 mil).
- Boots, steel toe and steel shank, chemical-resistant.
- Outer boot covers, disposable, chemical-resistant.
- Hard hat.

Level D Personal Protective Equipment:

- Coveralls (tyvek).
- Boots, chemical resistant, steel toe and steel shank.
- Safety glasses with side shields or goggles.
- Hard hat (face shield optional).
- Outer gloves, chemical-resistant (Nitrile-11 mil).
- Inner gloves, chemical-resistant (Nitrile-4 mil).

Attachment B Working Environment Action Levels for Site Activities			
Environment	Instrument	Reading	Action
Organic Vapor Presence	OVA or HNu	Background	Level D
		Above background	Measure breathing zone (see Attachment C)
Oxygen Amount in Air	O_2 Meter (MSA 260)	< 19.5% O_2	Level B. Explosive meter not valid at <10% O_2
		19.5%-23% O_2	SCBA not needed on basis of O_2 content only
		> 23% O_2	Evacuate. Explosive hazard. Consult with DHS
Explosion/Fire Danger	LEL Meter (MSA 260)	< 5% LEL	Continue activities. Measure breathing zone with OVA or HNu and LEL meter
		5-10% LEL	Identify and eliminate source. Continue activities. Measure breathing zone
		> 10% LEL	Evacuate. Explosion hazard. Consult with DHS
Radioactivity	Minirad Radiation Meter	Background	Continue activities
		Above background	Evacuate. Consult with DHS
Cyanide Gas	Monitox CN Meter	Any indication	Measure breathing zone. Consult with DHS
		No indication	Continue activities
H_2S Gas	MSTox H_2S	Any indication	Measure breathing zone. Consult with DHS
Respirable Dust	Mini-Ram Dust Meter	< 1 mg/m^3	Continue activities
		> 1 mg/m^3	Measure breathing zone
Noise	Noise Meter	< 85 dB(A)	No hearing protection required
		> 85 dB(A)	Hearing protection required

Attachment C Breathing Zone Action Levels for Site Activities			
Environment	Instrument	Reading	Action
Organic Vapor Presence	OVA or HNu	< 5 ppm above background	Level C with appropriate cartridges
		5 ppm above background to 500 ppm	Level B
		> 500 ppm	Evacuate. Consult with DHS
Oxygen Amount in Air	O_2 Meter (MSA 260)	< 19.5% O_2	Level B. Explosive meter not valid of <10% O_2
		19.5%-23% O_2	SCBA not needed on basis of O_2 content only
		> 23% O_2	Evacuate. Explosive hazard. Consult with DHS
Explosion/Fire Danger	LEL Meter (MSA 260)	< 10% LEL	Continue activities
		> 10% LEL	Evacuate. Consult with DHS
Cyanide Gas	Monitor CN Meter	Any indication	Evacuate. Consult with DHS for authorization to re-enter at Level B
Hydrogen Sulfide Gas	MSA 361	No indication	Continue activities
		< 5 ppm	Level D. Monitor breathing zone constantly
		> 5 ppm	Level B
Respirable Dust	Mini-Ram Dust Meter	< 1 mg/m^3	Continue activities
		1 mg/m^3 to 10 mg/m^3	Use of respirator with appropriate dust filters
		> 10 mg/m^3	Evacuate. Consult DHS

Attachment D
Site Organization

An essential factor in site control is a plan of organization for onsite work activities. If a portion of a site must be secure, its boundaries must be clearly designated to all workers and visitors. The organization plan will describe how the boundaries of the exclusion zone, contamination reduction zone, support zone, and the security perimeter will be defined in relation to the physical layout of the site. A site sketch or map showing physical features (buildings, roads, pavement, utilities, etc.); planned work zone boundaries; escape routes, the rally point(s); and other relevant information will be included. The site safety coordinator (SSC) will coordinate the preparation of the organization plan and its implementation onsite. The SSC will monitor the effectiveness of the plan in operation and correct any inefficiencies.

Buddy System

Use of a buddy system is mandatory for entry into an exclusion zone. A buddy system requires at least two people to work as a team, each looking out for the other. Each buddy will observe the partner for stress, check the partner's protective clothing, notify the support zone in the event of an emergency and provide assistance, if needed.

Site Communications Plan

Successful communication between field workers is essential. Attachment F shows the two communication systems set up for this purpose. The SSC will determine which system will be used onsite.

Work Zone Definition

Three general work zones will be established: an exclusion zone, a contamination reduction zone, and a support zone. Boundaries of each zone will be established in the field by the SSC.

The exclusion zone (EZ) is the area where potential for worker harm from contamination is either known or likely to be present. Entry into an EZ is limited to workers with certified training and medical monitoring in accordance with Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120.

The contamination reduction zone (CRZ) is the area where personnel conduct personal and equipment decontamination. It is a buffer zone between contaminated areas and clean areas. All activities conducted in the CRZ require personal protection as defined in the decontamination plan. Entry into a CRZ requires certification in training and medical monitoring in accordance with OSHA 29 CFR 1910.120.

The support zone is situated upwind of the EZ in a "clean area" (i.e., a location where the chance to encounter hazardous materials or conditions is minimal). PPE is therefore not required.

Attachment E Decontamination Stations and Methods			
Station	Equipment	Decontamination Methods	Disposal Methods
1	Tools, sampling devices, etc.	Wash & rinse with damp wipe.	Wash water disposed onsite.
2	Boot covers and outer gloves.	Wash and rinse.	Dispose in plastic garbage bags in a landfill.
3	Tyvek and inner gloves.	Wash and rinse.	Dispose in plastic garbage bags in a landfill.
4	Hands and face.	Field wash with soap and water.	Water disposed onsite.
5	Body.	Shower immediately following end of shift.	

Attachment F Communication Systems		
Communication	Signal	Definition
Audible Internal Communications (whistle, vehicle horn, personal air horn)	One long blast	Evacuate area
	Two short blasts	Localized problem, be on the alert
	Two long blasts	All clear, re-entry permitted
	Three short blasts	Cease work operations
Visual Internal Communications (hand signals)	Hands clutching throat	Out of air / cannot breathe
	Hands on top of head	Need assistance
	Thumb(s) up	OK / I am all right / I understand
	Thumb(s) down	No / negative
	Arms waving upright	Send backup support
	Grip partners wrist	Exit area immediately
	Cross arms above head	Cease work operations

Attachment G
Temperature Extremes

- Heat Stress Monitoring. Heat stress poses a serious health danger to site workers and may create secondary safety hazards by impairing a worker's coordination and judgement. Heat stress can occur at almost any temperature and is more likely when personal protective equipment is in use.

  The use of protective equipment may create heat stress. Monitoring of personnel will commence when the ambient temperature is 70°F or above. Table G-1 presents the suggested frequency for such monitoring. Monitoring frequency is dependent on the type of protection worn (permeable or impermeable clothing), the dry bulb temperature, and the amount of sunshine. Monitoring frequency should increase as the ambient temperature increases or as slow recovery rates are observed. Heat stress monitoring should be performed by a person with a current first aid certification who is trained to recognize heat stress symptoms. For monitoring the body's response to excess heat, one or more of the following techniques will be used.

- **Heart rate**. Count the radial pulse before site activities and during a 30-second period as early as possible in the monitoring cycle.
  - If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next cycle by one-third and keep the rest period the same.
    - If the heart rate still exceeds 110 beats per minute at the next rest period, shorten the following cycle by one-third.

- **Oral temperature**. Use a clinical thermometer (three minutes under the tongue) or similar device to measure the oral temperature before site activities and at the end of the monitoring cycle (before the worker drinks liquid).
  - If oral temperature exceeds 99.6°F (37.6°C), shorten the next work cycle by one-third without changing the rest period.

Table G-1

Suggested Frequency of Physiological Monitoring for Fit and Acclimatized Workers[a]

Adjusted Temperature[b]	Normal Work Ensemble[c]	Impermeable Ensemble[d]
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5 to 90°F (30.8 to 32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5 to 87.5°F (28.1 to 30.8°C)	After each 90 minutes of work	After each 60 minutes of work
77.5 to 82.5°F (25.3 to 28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5 to 77.5°F (22.5 to 25.3°C)	After each 150 minutes of work	After each 120 minutes of work

a. For work levels of 250 kilocalories/hour.

b. Calculate the adjusted air temperature (ta adj) by using the equation: ta adj °F + (13 x (% ÷ 100) sunshine). Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shield from radiant heat. Estimate percent sunshine by judging what percent of the time the sun is not covered by clouds that are thick enough to produce a shadow (100% sunshine = no cloud cover and a sharp distinct shadow; 0% sunshine = no shadows).

c. A normal work ensemble consists of cotton coveralls.

d. An impermeable ensemble consists of tyvek coveralls.

- If oral temperature still exceeds 99.6°F (37.6°C) at the beginning of the next rest period, shorten the following cycle by one-third.
- Do not permit a worker to wear a semipermeable or impermeable garment when oral temperature exceeds 100.6°F (38.1°C).

Type	Symptoms	Treatment
Heat Related Illness	Localized redness of skin and reduced sweating; reduced tolerance to heat	Keep skin clean and dry.
Heat Cramps	Muscle spasm and pain in extremities and abdomen.	Remove person to cool area. Give small amounts of salted water.
Heat Exhaustion	Weak pulse; shallow breathing; pale, cool, moist skin; profuse sweating; dizziness; fatigue.	Remove person to cool area, reduce body temperature. Cool by convection. Give small amounts of salted water. Do not allow person to become chilled.
Heat Stroke	Red, hot, dry skin; body temperature of 105°F or greater; nausea; dizziness; confusion; strong rapid pulse; coma. Convulsions may occur.	Seek medical attention immediately. Get victim cool quickly, wrap in wet cloth or immerse in cool water. Fan vigorously during transport to hospital. Apply cold packs, if available, avoiding direct contact between skin and pack/ice.

Heat stroke is a life-threatening heat disorder that requires life-saving first aid. Decontamination should be omitted.

Heat stress can become life threatening. Unless the victim is grossly contaminated, decontamination should be omitted or minimized and treatment begun immediately.

- Prevention of Heat Stress. Proper training and prevention measures will aid in adverting loss of work production and serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion that person may be predisposed to additional heat-related illnesses. To avoid heat stress, the HO has the authority to take the following steps.
  - Adjust work schedules
    - Modify work/rest schedules according to monitoring requirements.
    - Mandate work slowdowns as needed.
    - Perform work during cooler hours of the day if possible, or at night if adequate lighting can be provided.
  - Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
  - Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat, e.g., eight fluid ounces (0.23 liters) of water must be ingested for approximately every eight ounces (0.23 kg) of weight loss. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, the workers will be encouraged to drink more. The following strategies may be useful:
    - Maintain water temperature at 50 to 60°F (10 to 16.6°C).
    - Provide dedicated personal bottles or containers that hold about 1 quart of water.
    - Dedicated personal bottles of water should be allowed in the work area.
    - Have workers drink 16 ounces (0.5 liters) of fluid (preferably water or diluted drinks) before beginning work.
    - Urge workers to drink a cup or two every 15 to 20 minutes, or at each break. A total of 1 to 1.6 gallons (4 to 6 liters) of

fluid per person per day are recommended, but more may be necessary to maintain body weight.

- An additional water source should be maintained outside of contamination reduction zone.

- Train workers to recognize the symptoms of heat-related illnesses.
- Source of water should be available to spray down a person as a measure of preventing heat stress.

- Cold Stress Monitoring. When ambient temperature reaches 45° or below steps should be taken to prevent cold stress.

  Excessive exposure to low environmental air temperatures or immersion in low temperature water are usually fatal unless quickly remedied. Workers must be protected from exposure to cold so that the deep core temperature of the body does not fall below 96.8°F.

  Pain in the extremities may be the first early warning of danger to cold stress. Severe shivering may occur if the body temperature drops to 95°F. Workers exhibiting signs of cold stress or hypothermia must get to a warm area until they are safely able to resume their duties.

  - At air temperatures of 2°C (35.6°F) or less, it is imperative that workers who become immersed in water or whose clothing becomes wet be immediately provided a change of clothing and be treated for hypothermia.
  - Provisions for additional total body protection are required if work is performed in an environment at or below 4°C (40°F). The workers shall wear cold protective clothing appropriate for the level of cold and physical activity.
  - If only light work is involved and if the clothing on the worker may become wet on the job site, the outer layer of the clothing in use may be of a type impermeable to water. With more severe work under such conditions, the outer layer should be water repellent, and their outerwear should be changed as it becomes wetted. The outer garments must include provisions for easy ventilation in order to prevent wetting of inner layers by sweat. If work is done at normal temperatures or in a hot environment before entering the cold area, the employees shall make sure that their clothing is not wet as a consequence of sweating. If their clothing is wet, the employee shall change into dry clothes before entering the cold

area. The workers shall change socks and any removable felt insoles at regular daily intervals or use vapor barrier boots. The optimal frequency of changes shall be determined empirically and will vary individually and according to the type of shoe worn and how much the individual's feet sweat; if extremities, ears, toes, and nose, cannot be protected sufficiently to prevent sensation of excessive cold or frostbite by handware, footwear, and face masks, these protective items shall be supplied in auxiliary heated versions.

- If the available clothing does not give adequate protection to prevent hypothermia or frostbite, work shall be modified or suspended until adequate clothing is made available or until weather conditions improve.
- The recommended limits for properly clothed workers for periods of work at temperatures below freezing are listed in Table G- 2.

Table G-2
Cold Work Environment
Work Practice

Cooling Power of Wind on Exposed Flesh Expressed as an Equivalent Temperature (under calm conditions)*

Estimated Wind Speed (in mph)	Actual Temperature Reading (*F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Chill Temperature (*F)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds greater than 40 mph have little additional effect.)	LITTLE DANGER In < hr with dry skin. Maximum danger of false sense of security				INCREASING DANGER Danger from freezing of exposed flesh within one minute.				GREAT DANGER Flesh may freeze within 30 seconds.			
	Trenchfoot and immersion foot may occur at any point on this chart.											

*Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA.

Work/Warm-up Schedule for Four-Hour Shift*

Air Temperature-Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°C (approx.)	°F	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
1. -26° to -28°	-15° to -19°	(Norm. Breaks)	1	(Norm. Breaks)	1	75 min.	2	55 min.	3	40 min.	4
2. -29° to -31°	-20° to -24°	(Norm. Breaks)	1	75 min.	2	55 min.	3	40 min.	4	30 min.	5
3. -32° to -34°	-25° to -29°	75 min.	2	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease	
4. -35° to -37°	-30° to -34°	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease			
5. -38° to -39°	-35° to -39°	40 min.	4	30 min.	5	Non-emergency work should cease					
6. -40° to -42°	-40° to -44°	30 min.	5	Non-emergency work should cease							
7. -43° & below	-45° & below	Non-emergency work should cease									

Notes

1. Schedule applies to moderate to heavy work activity with warm-up breaks of ten (10) minutes in a warm location. For Light-to-Moderate Work (limited physical movement): apply the schedule one step lower. For example, at -30°F with no noticeable wind (Step 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period (Step 5).

2. The following is suggested as a guide for estimating wind velocity. If accurate information is not available: 5 mph: light flag moves; 10 mph: light flag fully extended; 15 mph: raises newspaper sheet; 20 mph: blowing and drifting snow.

3. If only the Wind Chill Factor is available, a rough rule of thumb for applying it rather than the temperature and wind velocity factors given above would be: 1) special warm-up breaks should be initiated at a wind chill of about 1750 $W/m^2/hr$, 2) all non-emergency work should have ceased at or before a wind chill of 2250 $W/m^2/hr$. In general the warm-up schedule provided above slightly under-compensates for the wind at the warmer temperatures, assuming acclimatization and clothing appropriate for winter work. On the other hand, the chart slightly over-compensates for the absolute temperatures in the colder ranges, since windy conditions rarely prevail at extremely low temperatures.

*From Occupational Health & Safety Division, Saskatchewan Dept. of Labor.

Attachment H
B&V Waste Science and Technology Corp.
Hazardous Waste Site Personnel Activity Report

B & V WASTE SCIENCE AND TECHNOLOGY CORPORATION

HAZARDOUS WASTE SITE PERSONNEL ACTIVITY REPORT

Site Name _____ Project Number ☐☐☐☐☐.☐☐☐

Site Activity _____

Last Name	FI	MI	Employee #	Dept #	Level	Days	Field Team Position

Comments _____

Complete form at least weekly and submit to BVWST Health and Safety, N5

_____ Site Safety Coordinator

_____ Date

BVWST 12/00

Attachment I
Employers First Report Of Injury or Illness

FORM 45: **Employers First Report of Injury or Illness** PLEASE TYPE OR PRINT

Filing of this report does not affect your liability under the Workers' Compensation Act and is not incriminatory in any sense.

A	*45 ILLINOIS UNEMPLOYMENT COMPENSATION NUMBER		DATE OF REPORT MONTH DAY YEAR		CASE OR FILE NUMBER		
B	EMPLOYER'S NAME		EMPLOYER'S FEIN NUMBER		IS THIS A LOST WORKDAY CASE? ☐ Yes ☐ No		
C	DOING BUSINESS UNDER THE NAME OF		/ CITY, STATE		/ ZIP CODE		
D	MAILING ADDRESS		/ CITY, STATE		/ ZIP CODE		
E	EMPLOYER LOCATION IF DIFFERENT FROM MAILING ADDRESS						
F	NATURE OF BUSINESS OR SERVICE	SIC CODE		TOTAL NUMBER OF EMPLOYEES AT THE LOCATION WHERE ILLNESS OR INJURY OCCURRED			
G	NAME OF WORKERS' COMPEN. INSURANCE CARRIER	POLICY NUMBER		SELF INSURED YES ☐ NO ☐	COUNTY WHERE INJURY OCCURRED		
H	EMPLOYEE'S NAME (LAST, FIRST, MIDDLE)			SOCIAL SECURITY NUMBER			
I	HOME ADDRESS		/ CITY, STATE		/ ZIP CODE		
J	MALE ☐ FEMALE ☐	MARRIED ☐ SINGLE ☐ WIDOW(ER) ☐ DIVORCED ☐		BIRTH DATE MONTH DAY YEAR		NUMBER OF DEPENDENT CHILDREN UNDER 18 AT TIME OF INJURY OR ILLNESS	
K	DATE AND TIME OF THE INJURY OR EXPOSURE	MONTH DAY YEAR ____ a.m. ____ p.m.	EMPLOYEE'S AVERAGE WEEKLY EARNINGS	$	LAST DAY EMPLOYEE WORKED	MONTH DAY YEAR	
L	JOB TITLE OR OCCUPATION			DEPARTMENT NORMALLY ASSIGNED			
M	ADDRESS OF LOCATION WHERE INJURY OR EXPOSURE OCCURRED		/ CITY, STATE		/ ZIP CODE		
N	DID EMPLOYEE DIE AS A RESULT OF THE INJURY OR ILLNESS? ☐ YES ☐ NO		EMPLOYEE DIED AS A RESULT OF THE INJURY OR ILLNESS, GIVE DATE OF DEATH		MONTH DAY YEAR		
O	WAS THE INJURY OR EXPOSURE ON THE EMPLOYER'S PREMISES? ☐ YES ☐ NO	DID THIS INCIDENT RESULT IN: ☐ OCCUPATIONAL DISEASE		WAS EMPLOYEE GIVEN INDUSTRIAL COMMISSION HANDBOOK? ☐ YES ☐ NO			
P	NATURE OF THE INJURY						
Q	PART OF THE BODY AFFECTED (BE SPECIFIC)						
R	WHAT TASK WAS EMPLOYEE PERFORMING WHEN ILLNESS OCCURRED?						
S	OBJECT OR SUBSTANCE RESPONSIBLE FOR INJURY OR ILLNESS (SOURCE)						
T	HOW DID ACCIDENT OR ILLNESS OCCUR (TYPE)?						
U	WHAT HAZARDOUS CONDITIONS, METHODS OR LACK OF PROTECTIVE DEVICES CONTRIBUTED?						
V	WHAT UNSAFE ACT BY A PERSON CAUSED OR CONTRIBUTED TO THE INJURY OR ILLNESS?						
W	HAVE MEDICAL SERVICES BEEN RENDERED TO THE EMPLOYEE? ☐ YES ☐ NO		IS OR HAS THE EMPLOYEE BEEN HOSPITALIZED? ☐ YES ☐ NO				
X	NAME AND ADDRESS OF PHYSICIAN		/ CITY, STATE		/ ZIP CODE		
Y	NAME AND ADDRESS OF HOSPITAL		/ CITY, STATE		/ ZIP CODE		
Z	REPORT PREPARED BY: (NAME — PRINT OR TYPE)		SIGNATURE		TITLE AND TELEPHONE NUMBER		

ACCIDENT REPORTING DEPT., ILLINOIS INDUSTRIAL COMMISSION, 100 West Randolph Street. Chicago, Illinois 60601

NOTE: DISCLOSURE OF THIS INFORMATION TO THE INDUSTRIAL COMMISSION IS MANDATORY UNDER IL. REV. STAT. CH. 48, §1386. FAILURE TO PROVIDE ANY INFORMATION COULD RESULT IN PROSECUTION. APPROVED BY FORMS MANAGEMENT.

IL 563#0085 (Rev. 6/90)

Attachment J
OSHA Poster

JOB SAFETY & HEALTH PROTECTION

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers by promoting safe and healthful working conditions throughout the Nation. Provisions of the Act include the following:

Employers

All employers must furnish to employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to employees. Employers must comply with occupational safety and health standards issued under the Act.

Employees

Employees must comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to their own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and its Compliance Safety and Health Officers conduct jobsite inspections to help ensure compliance with the Act.

Inspection

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

Complaint

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or for otherwise exercising their rights under the Act.

Employees who believe they have been discriminated against may file a complaint with their nearest OSHA office within 30 days of the alleged discriminatory action.

Citation

If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

Proposed Penalty

The Act provides for mandatory civil penalties against employers of up to $7,000 for each serious violation and for optional penalties of up to $7,000 for each nonserious violation. Penalties of up to $7,000 per day may be proposed for failure to correct violations within the proposed time period and for each day the violation continues beyond the prescribed abatement date. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to $70,000 for each such violation. A minimum penalty of $5,000 may be imposed for each willful violation. A violation of posting requirements can bring a penalty of up to $7,000.

There are also provisions for criminal penalties. Any willful violation resulting in the death of any employee, upon conviction, is punishable by a fine of up to $250,000 (or $500,000 if the employer is a corporation), or by imprisonment for up to six months, or both. A second conviction of an employer doubles the possible term of imprisonment. Falsifying records, reports, or applications is punishable by a fine of $10,000 or up to six months in jail or both.

Voluntary Activity

While providing penalties for violations, the Act also encourages efforts by labor and management, before an OSHA inspection, to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries. OSHA's Voluntary Protection Programs recognize outstanding efforts of this nature.

OSHA has published Safety and Health Program Management Guidelines to assist employers in establishing or perfecting programs to prevent or control employee exposure to workplace hazards. There are many public and private organizations that can provide information and assistance in this effort, if requested. Also, your local OSHA office can provide considerable help and advice on solving safety and health problems or can refer you to other sources for help such as training.

Consultation

Free assistance in identifying and correcting hazards and in improving safety and health management is available to employers, without citation or penalty, through OSHA-supported programs in each State. These programs are usually administered by the State Labor or Health department or a State university.

Posting Instructions

Employers in States operating OSHA approved State Plans should obtain and post the State's equivalent poster.

Under provisions of Title 29,Code of Federal Regulations, Part 1903.2(a)(1) employers must post this notice (or facsimile) in a conspicuous place where notices to employees are customarily posted.

More Information

Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from your employer or from the nearest OSHA Regional Office in the following locations:

Atlanta, GA	(404) 347-3573
Boston, MA	(617) 565-7164
Chicago, IL	(312) 353-2220
Dallas, TX	(214) 767-4731
Denver, CO	(303) 844-3061
Kansas City, MO	(816) 426-5861
New York, NY	(212) 337-2378
Philadelphia, PA	(215) 596-1201
San Francisco, CA	(415) 744-6670
Seattle,WA	(206) 442-5930

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Occupational Safety and Health Administration

To report suspected fire hazards, imminent danger safety and health hazards in the workplace, or other job safety and health emergencies, such as toxic waste in the workplace, call OSHA's 24-hour hotline: 1-800-321-OSHA.

This information will be made available to sensory impaired individuals upon request. Voice phone: (202) 523-8615; TDD message referral phone: 1-800-326-2577

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